

CLAIMS

1. A protein or a salt thereof, which (i) belongs to a member of MMPs having the activation capability of pro MMP-2, (ii) has an activity identical with or substantially equivalent to naturally-occurring MT-MMP, and (iii) is a pro MMP-2 activating factor, excluding MT-MMP-1.

2. The protein according to Claim 1, wherein the protein has a biological property or primary structural conformation identical with or substantially equivalent to that of native MT-MMP-3 or a salt thereof.

3. The protein according to Claim 1 or Claim 2, wherein a C-terminal area of the protein has (i) an amino acid sequence from Ala<sup>561</sup> to Phe<sup>584</sup> in the sequence represented by SEQ ID NO: 2 in the Sequence Listing or (ii) an amino acid sequence substantially equivalent thereto.

4. The protein according to any of Claims 1 to 3, wherein the protein is MT-MMP-3 or a salt thereof which has (i) an amino acid sequence represented by SEQ ID NO: 2 in the Sequence Listing or (ii) an amino acid sequence equivalent thereto.

5. The protein according to any of Claims 1 to 4, wherein the protein is the product of prokaryotic or eukaryotic expression of an exogenous DNA sequence.

6. The protein according to any of Claims 1 to 5, wherein the protein has (i) the amino acid sequence of SEQ ID NO: 2 in the Sequence Listing or (ii) the substantially same amino acid sequence.

7. A partial peptide of the protein according to any of Claims 1 to 6 or a salt thereof.

8. A nucleic acid comprising a nucleotide sequence coding for the protein or the partial peptide according to any of Claims 1 to 7.

9. The nucleic acid according to Claim 8, which is a DNA gene having a nucleotide sequence coding for MT-MMP-3 according to any of Claims 2 to 4.

10. The nucleic acid according to Claim 8 or 9,

having (i) an open reading frame region of the nucleotide sequence represented by SEQ ID NO: 1 in the Sequence Listing or (ii) a nucleotide sequence having an activity substantially equivalent thereto.

11. A vector comprising the nucleic acid according to any of Claims 8 to 10.

12. A transformant or transfected harboring (i) the nucleic acid according to any of of Claims 8 to 10 or (ii) the vector according to Claim 11.

13. A process for producing the protein according to any of Claims 1 to 6 or a partial peptide thereof, which comprises:

(i) culturing the transformant or transfectant according to Claim 12 in a nutrient medium capable of growing said transformant or transfectant, and .

(ii) producing, as a recombinant species, the protein according to any of Claims 1 to 6 or a partial peptide thereof, including MT-MMP-3 or a salt thereof;

14. An antibody against (a) a protein or a salt thereof which (i) belongs to a member of MMPs having the activation capability of pro MMP-2, (ii) has an activity identical with or substantially equivalent to naturally-occurring MT-MMP, and (iii) is a pro MMP-2 activating factor, excluding MT-MMP-1, or (b) a partial peptide of said protein or a salt thereof.

15. The antibody according to Claim 14, wherein the antibody is against the protein which has an activity or a primary structural conformation identical with or substantially equivalent to that of MT-MMP-3 or a salt thereof.

16. The antibody according to Claim 14 or 15, wherein the antibody is against the protein that is MT-MMP-3 or a salt thereof having (i) an amino acid sequence represented by SEQ ID NO: 2 in the Sequence Listing or (ii) an amino acid sequence substantially equivalent thereto.

17. The antibody according to any of Claims 14 to 16, wherein the antibody is against the protein which is a product obtained by expressing a foreign DNA sequence in

prokaryotes or eukaryotes.

18. The antibody according to any of Claims 14 to 17, wherein the antibody is against the protein which has (i) the amino acid sequence of SEQ ID NO: 2 in the Sequence Listing or (ii) the substantially same amino acid sequence.

19. The antibody according to any of Claims 14 to 18, wherein the antibody is against a partial peptide of the protein or a salt thereof.

20. The antibody according to any of Claims 14 to 19, wherein the antibody is anti-serum.

21. The antibody according to any of Claims 14 to 19, wherein the antibody is monoclonal.

22. The antibody according to any of Claims 14 to 19 and 21, which is a monoclonal antibody against MT-MMP-3 or a salt thereof.

23. A method for producing an antibody against (a) a protein or a salt thereof which (i) belongs to a member of MMPs having the activation capability of pro MMP-2, (ii) has an activity identical with or substantially equivalent to naturally-occurring MT-MMP, and (iii) is a pro MMP-2 activating factor, excluding MT-MMP-1, or (b) a partial peptide of said protein or a salt thereof, which comprises employing an antigen selected from the group consisting of said protein, said partial peptide and a salt thereof to raise the antibody thereagainst.

24. A method for producing the antibody according to Claim 21 or 22, which comprises

(A) fusing an antibody-producing cell obtained from an immunized animal with an immortal cell, wherein said antibody is against (a) a protein or a salt thereof which (i) belongs to a member of MMPs having the activation capability of pro MMP-2, (ii) has an activity identical with or substantially equivalent to naturally-occurring MT-MMP, and (iii) is a pro MMP-2 activating factor, excluding MT-MMP-1, or (b) a partial peptide of said protein or a salt thereof and said animal is immunized with the protein, the partial peptide or a salt thereof, and

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(B) selecting an immortal hybrid cell capable of an antibody against a protein including MT-MMP-3.

25. A method for detecting and/or measuring MT-MMP-3, which comprises using (A) a reagent selected from the group consisting of (a) a protein or a salt thereof which (i) belongs to a member of MMPs having the activation capability of pro MMP-2, (ii) has an activity identical with or substantially equivalent to naturally-occurring MT-MMP, and (iii) is a pro MMP-2 activating factor, excluding MT-MMP-1, and (b) a partial peptide of said protein or a salt thereof, or (B) a reagent selected from the group consisting of the antibodies according to any of Claims 14 to 22.

26. A labeled antibody against MT-MMP-3 for the method for detecting and/or measuring MT-MMP-3 (the detection and/or measurement of MT-MMP-3) according to Claim 25.

27. A labeled protein or a salt thereof, for the method for detecting and/or measuring MT-MMP-3 according to Claim 25, wherein said labeled protein (i) belongs to a member of MMPs having the activation capability of pro MMP-2, (ii) has an activity identical with or substantially equivalent to naturally-occurring MT-MMP, and (iii) is a pro MMP-2 activating factor, excluding MT-MMP-1, or a labeled partial peptide of said protein or a salt thereof, for the method according to Claim 25.

28. A labeled nucleic acid for detection and/or measurement of MT-MMP-3 expressing cells and/or tissues, wherein said nucleic acid encodes (A) a protein which (i) belongs to a member of MMPs having the activation capability of pro MMP-2, (ii) has an activity identical with or substantially equivalent to naturally-occurring MT-MMP, and (iii) is a pro MMP-2 activating factor, excluding MT-MMP-1, or (B) a partial peptide of said protein.

29. A nucleic acid according to Claim 28, which is a probe for hybridization.